

A conjecture of Paul Erdős

In number theory there is a very deep unsolved conjecture of the Hungarian Paul Erdős (1913-1996), that there exist infinitely many primes of the form x^2+1 , where x is an integer. However, a weaker form of this conjecture has been proved: there are infinitely many primes of the form x^2+y^4 . You don't need to prove this, it is only your task to find the number of (positive) primes not larger than n which are of the form x^2+y^4 (where x and y are integers).

Input

An integer T , denoting the number of testcases ($T \leq 10000$). Each of the T following lines contains a positive integer n , where $n < 100000000$.

Output

Output the answer for each n .

Example

Input:

```
4
1
2
10
9999999
```

Output:

```
0
1
2
13175
```